APPALACHIANS.

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STEREOTYPERS AND PRINTERS
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Appalachians, a great mountain-system of North America, nearly parallel with the Atlantic coast, and extending from the Gulf of St. Lawrence SSW. to the west central portion of Alabama. Geologically, it is much older than the Western Cordillera, known as the Rocky Mountain system, but it is in the main much later in geologic date than the Laurentide system, which represents it on the north of the St. Lawrence. It is the parent of many of the rivers of the Atlantic States; but several large streams break its continuity; and one, the river Hudson, is a tidal channel which carries even sea-going vessels through the range, a phenomenon very unusual in any part of the world. The Appalachians consist, in the main, of various parallel ranges, separated by wide valleys. Even the low hill-ranges between the mountains and the sea have much of the same parallelism, and the sea-coast has in a marked degree the same general direction and curvature as the mountains themselves; while, far to the NE., the nearly detached peninsula of Nova Scotia and the island of Newfoundland are traversed by ranges exhibiting the same parallelism and the same general direction as are seen in the Appalachian ranges. In no mountain-system do we find better illustrations of the celebrated theory of the late H. D. Rogers concerning the process of mountain formation than in this. The wave-like structure is re-

garded as due to pulsations in the fluid matter beneath the earth's crust, propagated in great waves of translation from vast ruptures due to the tension of elastic matter. The shape of the ridges, the plications of the strata, and the final direction of the flexures, are regarded as results of a combined undulating and tangential movement. During this movement rents occurred along some of the bendings, out of which dykes and veins of igneous matter were poured. In short, a great earthquake, or succession of earthquakes, here occurred, during which the earth's crust received much of that corrugation of surface which these mountains at present exhibit. At the same time the oscillations of the crust seem to have actually thrown forward or floated the earth's crust along the surface of the fiery sea on which it rested.

Locally, the Appalachians have various names. In the Gaspé Peninsula we find the Shickshock Mountains, and then the White Hills, and the Franconia Mountains of New Hampshire, where Mount Washington attains the height of 6293 feet. In the Green Mountains of Vermont, the disposition of the mountains into parallel chains becomes apparent. In Massachusetts, the main ridge is locally called the Hoosic Range, and the more westward ridge is the Taghkanic. To the east of the Hudson lie the Highlands; on the west side of the river are the Catskills, Shawangunk Mountains, and other groups, with only local exemplifications of parallelism. In Pennsylvania, the mountain-ridges are long, and are marked by a singular evenness of their tops, there being few noteworthy peaks, but many gaps for the transmission of streams. Still farther to the SW.

the flat mountain-tops often become wide treeless plains, densely covered with grass, and having a soil sometimes rich, but often heavy and wet. In some instances, however, these narrow plateaus are singularly dry and barren. The valleys between the ridges have sometimes an extremely fertile soil, resting upon cavernous limestone, with beds of valuable iron ore; but some of the valleys have a lean slaty soil. In Pennsylvania and Maryland, the most seaward of the important ridges is the South Mountain or Blue Ridge, which is regarded as identical with the Unaka or Smoky Mountain Ridge of North Carolina and Tennessee; what is called the Blue Ridge of North Carolina being a nearly parallel eastern chain, which in the SW. part of Virginia coalesces with the Blue Ridge proper. West of the South Mountain of Pennsylvania comes the great Alleghany Ridge, which often gives name to the whole system. It is much more remarkable for its uniformity and flatness of top, and for the absence of breaks, than the South Mountain or Blue Ridge. In the great valley between the two main crests are several minor parallel ridges, and the same feature is apparent in the elevated region which is bounded eastward by the main Alleghany. The great Cumberland Mountain plateau of Kentucky and Tennessee may be taken as the SW. representative of the Alleghanies proper. Crossing Tennessee, the western parts of the Carolinas, and the NW. of Georgia, the system terminates in the broken hilly plateau of Central Alabama.

Nowhere do the Appalachians reach the snow-line. Their highest points occur in North Carolina, where Mitchell's Peak reaches the height of 6688 feet. The

Appalachians must have been, in the main, developed after the Carboniferous, and before the Jurassic period, although the material of the NE. part of the range is largely referable to a very much more remote age—viz. the Huronian, or perhaps even the Laurentian age. Whatever strata more recent than these may have once helped to form the mountains of New England, they have been to a great extent removed by glacial or other erosive processes.

The principal coal-beds of this chain occur in Pennsylvania to the NNE., and in other states southward along the mountains to their termination in Alabama, the chief coal-basins being either among the mountains, or to the westward of them. There are beds of anthracite coal on the eastern slopes of the Appalachians, chiefly in Pennsylvania, west of which the coal becomes bituminous, after we have crossed basins of semi-anthracitic and moderately bituminous coal. This coal region is one of the most productive, extensive, and important anywhere known. Of the metals, by far the most important is iron, of which various ores of magnetic, hematitic, and fossiliferous character occur very extensively, and are largely wrought. Gold occurs chiefly to the eastward of the mountains, and is wrought at various points from Virginia to Alabama. Zinc, lead, and other metals are found in this range, which also affords marbles and other limestones, slates, and a great variety of building-stones.